

LISTING OF CLAIMS

The listing of claims provided below replaces all prior versions, and listings, of claims in the application.

5 1-22. (Cancelled)

23. (Currently Amended) An apparatus for depositing a material on a surface of a wafer, comprising:

10 a tank defined by an enclosing wall and a bottom, the tank being configured to contain an electroless plating solution;

 a wafer support structure disposed within the tank, the wafer support structure being configured to support a wafer at a submerged position within the electroless plating solution to be contained within the tank; and

15 a radiant energy source disposed above the wafer support structure, the radiant energy source oriented to direct radiant energy toward the wafer to be supported at the submerged position within the electroless plating solution, wherein the radiant energy source is designed to generate radiant energy having a wavelength range that will be selectively absorbed by atoms, molecules, or both atoms and molecules of ~~is capable of selectively heating~~ a first material present at a surface of the wafer upon which the radiant
20 energy is incident without being substantially absorbed by ~~causing~~ a second material present at the surface of the wafer near the first material ~~to be substantially heated by the radiant energy, wherein the selective absorption of the radiant energy by the first material will cause a selective heating and increased temperature of the first material, and wherein the lack of substantial absorption of the radiant energy by the second material will avoid a~~
25 substantial heating and increased temperature of the second material, wherein the radiant energy source is defined to sufficiently heat ~~selective heating of~~ the first material in

exposure to the electroless plating solution so as to cause ~~enabling~~ an electroless plating reaction to selectively occur on the first material without occurring on the second material.

5 24. (Cancelled)

25. (Original) An apparatus for depositing a material on a surface of a wafer as recited in claim 23, wherein the radiant energy source is configured to apply a substantially uniform amount of the radiant energy over the surface of the wafer.

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26. (Original) An apparatus for depositing a material on a surface of a wafer as recited in claim 25, wherein the radiant energy source is stationary.

15 27. (Original) An apparatus for depositing a material on a surface of a wafer as recited in claim 25, wherein the radiant energy source is configured to collimate the radiant energy, the radiant energy source being further configured to be scanned over the surface of the wafer.

20 28. (Original) An apparatus for depositing a material on a surface of a wafer as recited in claim 23, wherein the wafer support structure is configured to oscillate the wafer.

25 29. (Original) An apparatus for depositing a material on a surface of a wafer as recited in claim 23, further comprising:

an inlet for supplying the electroless plating solution to the tank; and
an outlet for removing the electroless plating solution from the tank.

30. (Original) An apparatus for depositing a material on a surface of a wafer as recited in claim 23, further comprising:

5 a heat exchanger capable of maintaining a temperature of the electroless plating solution to be contained within the tank.

31. (Currently Amended) An apparatus for depositing a material on a surface of a wafer, comprising:

10 a vessel defined by a top, a bottom, and an enclosing wall, the vessel being configured to contain an electroless plating solution;

a wafer support structure disposed within the vessel, the wafer support structure being configured to support a wafer at a position within the vessel; and

15 a radiant energy source disposed above the wafer support structure, the radiant energy source oriented to direct radiant energy toward the wafer to be supported within the vessel, wherein the radiant energy source is designed to generate radiant energy having a wavelength range that will be selectively absorbed by atoms, molecules, or both
atoms and molecules of is capable of selectively heating a first material present at a surface of the wafer upon which the radiant energy is incident without being substantially
absorbed by causing a second material present at the surface of the wafer near the first
20 material to be substantially heated by the radiant energy, wherein the selective absorption
of the radiant energy by the first material will cause a selective heating and increased
temperature of the first material, and wherein the lack of substantial absorption of the
radiant energy by the second material will avoid a substantial heating and increased
temperature of the second material, wherein the radiant energy source is defined to
25 sufficiently heat selective heating of the first material in exposure to the electroless

plating solution so as to cause enabling an electroless plating reaction to selectively occur
on the first material without occurring on the second material.

32. (Original) An apparatus for depositing a material on a surface of a
5 wafer as recited in claim 31, wherein the radiant energy source is disposed outside the
vessel, the vessel being composed of a material capable of transmitting radiant energy
emitted from the radiant energy source to an interior of the vessel.

33. (Original) An apparatus for depositing a material on a surface of a
10 wafer as recited in claim 31, wherein the radiant energy source is disposed within the
vessel.

34. (Cancelled)

15 35. (Original) An apparatus for depositing a material on a surface of a
wafer as recited in claim 31, wherein the radiant energy source is configured to apply a
substantially uniform amount of the radiant energy over the surface of the wafer.

36. (Original) An apparatus for depositing a material on a surface of a
20 wafer as recited in claim 31, wherein the radiant energy source is stationary.

37. (Original) An apparatus for depositing a material on a surface of a
wafer as recited in claim 31, wherein the radiant energy source is configured to collimate
the radiant energy, the radiant energy source being further configured to be scanned over
25 the surface of the wafer.

38. (Original) An apparatus for depositing a material on a surface of a wafer as recited in claim 31, wherein the wafer support structure is configured to oscillate the wafer.

5 39. (Original) An apparatus for depositing a material on a surface of a wafer as recited in claim 31, further comprising:

a pressure control capable of controlling a pressure of the electroless plating solution to be contained within the vessel.

10 40. (Original) An apparatus for depositing a material on a surface of a wafer as recited in claim 31, further comprising:

an inlet for supplying the electroless plating solution to the vessel; and

an outlet for removing the electroless plating solution from the vessel.

15 41. (Original) An apparatus for depositing a material on a surface of a wafer as recited in claim 31, further comprising:

a heat exchanger capable of maintaining a temperature of the electroless plating solution to be contained within the vessel.

20 42-52. (Cancelled)

53. (New) An apparatus for depositing a material on a surface of a wafer as recited in claim 23, wherein the radiant energy source is defined to operate in a pulsed manner so as to enable successive heating and quenching of the first material in a cyclic manner.

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54. (New) An apparatus for depositing a material on a surface of a wafer as recited in claim 31, wherein the radiant energy source is defined to operate in a pulsed manner so as to enable successive heating and quenching of the first material in a cyclic manner.

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